

New and Little Known Species of *Cryphia* (s.l.) with Illustrations of the Male Genitalia of the Known Northeast Asian Species (Lepidoptera: Noctuidae)

Shigero SUGI

41-3, Akadutumi 5, Setagaya, Tokyo

New species of the genus *Cryphia* HÜBNER (sensu lato), two from Japan and one from Chejudo Island, will be described, with some notes on related species and illustrations of the male genitalia of all the known northeast Asian species of the genus. They are clearly divided into two groups, referred to *Cryphia* (sensu stricto) and *Bryophila*, which I would like to consider as separate genera.

Cryphia suzukiella (MATSUMURA) (Fig. 1)

Metachrostis suzukiella MATSUMURA, 1931, 6000 *illustr. Insects Japan-Empire*: 814, fig.

The rarest species of our *Cryphia*. No subsequent record has been published since original description, stating that:

“*Metachrostis suzukiella* Mats. [Japanese name:] *Suzuki-kinoko-yotô*. Forewing bluish grey; the space beyond antemedian line suffused with dark; subterminal line preceded by pale colour; a dark bluish spot at base defined posteriorly by black; [ante] median and subterminal [postmedian] lines blackish, the former defined anteriorly and the latter posteriorly by white; a black stria above tornus. Hindwing dark, with pale cilia. Expanse 7 *bu* [21 mm]. Not uncommon in Kyoto area. Distr. Honshu (Kyoto)” [translation from Japanese by SUGI].

The bluish grey colour of forewing is characteristic to this species. Male genitalia (Fig. 12) are as illustrated. Valva bifid apically with the ventral process shorter.

Type-material. Lectotype ♂, here designated, labelled “Japan Matsumura/Suzuki/14 XIII 9/*Metachrostis suzukiella* Mats.” Genitalia slide Nct 71, mounted by SUGI. In coll. Entomological Institute of Hokkaido University.

Other material examined. Shikoku—Kôchi Pref., Yotsuashi-tôge, 1 ♂, 8. viii. 1970 (Y. KAWAKAMI); 1 ♀, 20. vii. 1971 (Y. KAWAKAMI). In coll. SUGI. Tsushima Island—Kônokiyama, 1 ♀, 29. vii. 1973 (T. WATANABE). In coll. WATANABE.

Distribution. Japan, western district to Tsushima Island.

Cryphia maritima sp. n. (Fig. 3)

Length of forewing 12 mm. Palpus deep brown mixed with grey brown at end of segments. Head and thorax deep moss green tinged with grey. Forewing deep moss green from base to antemedian line, mixed with brown in submedian fold and

before hindmargin, costa tinged with brown; subbasal line black, indented inwards below costa, ending in a short black stria at base in submedian fold; antemedian line nearly oblique from costa to middle of hindmargin, minutely angled outwards just before it; median space brown, a thick black bar in submedian fold connecting ante- and postmedian lines; reniform indistinct, somewhat quadrate, with fuscous centre; postmedian line fine defined anteriorly by white, arising from a dark stria below costa, strongly indented outward, then strongly excurved to vein 3, and slightly excurved to hindmargin; space beyond postmedian line moss green, An irregular series of black striae between veins; pale olive line before termen, termen and cilia dark brown. Hindwing dark brown, infuscated, outer area darker from costa to tornus, veins tinged with fuscous.

Male genitalia (Fig. 13). Uncus somewhat raised dorsally before middle. Tegumen narrow. Valva with very long costal extension, which are bent ventrally beyond middle, slightly asymmetrical, longer and curved at right side. A densely setose digitate process arising from costa before middle. Saccus moderately bulged laterally, with ventro-apical extension ending in a point. Juxta narrow, about three times as long as its maximum width. Aedeagus moderate, vesica unarmed.

Type-material. Holotype ♂. Yakushima Island—Mt. Aikodake, 26. vii. 1974 (H. INOUE). Genitalia slide SS-2609. In coll. SUGI. Paratypes. Shikoku—Tokushima Pref., Shishikui-machi, Mitoko, 1 ♂, 29. viii. 1975 (T. MASUI). In coll. SUGI. Yakushima Island—Nagata, 1 ♂, 6. viii. 1972 (T. WATANABE); Kuromidake, 1 ♂, 29. vii. 1972 (T. WATANABE). In coll. WATANABE. Amami-Oshima Island—Mt. Yuwandake, 2 ♂, 15–17. viii. 1977 (R. SATO & A. SEINO). In coll. SEINO.

In external appearance the present new species is similar to *C. mediofusca* SUGI (Fig. 2), but the male genitalia are widely different (cf. Fig. 9). The appendiculate process on costa is unusual for the genus, but may be comparable with such seen in *recepticula* (HÜBNER), the type-species of *Cryphia* (cf. BOURSIN, 1941).

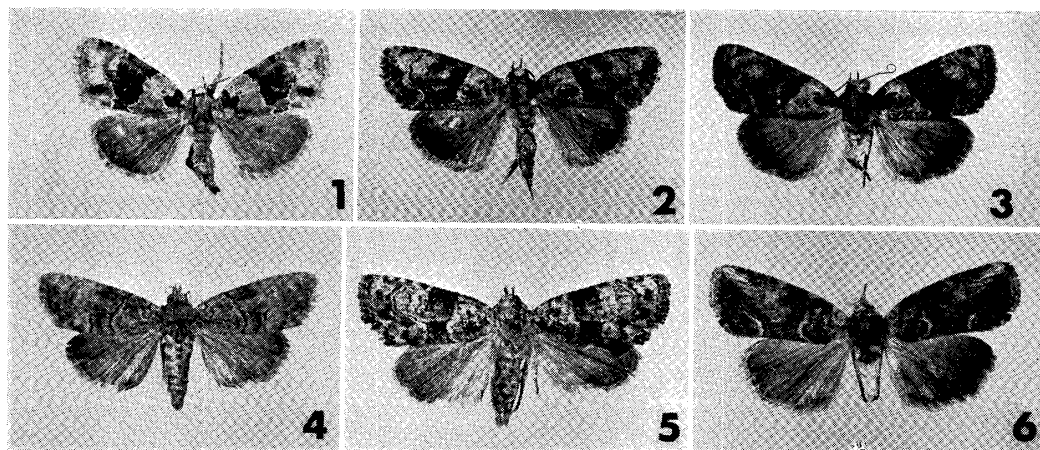
Distribution. Japan: southwest coastal region of the mainland to Yakushima and Amami-Oshima Islands.

Bryophila parva sp. n.

(Fig. 4)

Expanse 25 mm. In colour and wing pattern similar to *granitalis* (BUTLER) but appreciably smaller, more suffused with ashy grey, and less brownish tint in median and subterminal spaces; subbasal and antemedian lines as in *granitalis*, the latter defined anteriorly with ashy grey; orbicular untraceable, space in cell longitudinally pale brownish to before reniform; reniform ashy grey with fuscous centre; a black stria in submedian fold between ante- and postmedian lines, finer than in *granitalis*, and not extending beyond the latter; postmedian line double, filled in with ashy grey, the outer line slightly diffuse; subterminal line ashy grey, clouded with fuscous grey before it; no black line before termen that is seen in *granitalis*; termen and cilia dark fuscous grey. Hinding nearly as in *granitalis*, but less brownish suffusion.

Male genitalia (Fig. 18). Nearly as in *granitalis*, valva narrower towards apex. Aedeagus with no cornutus, vesica extensively finely spinulated.



Figs. 1–6. 1. *Cryphia suzukiella* (MATSUMURA) ♂. 2. *Cryphia mediofusca* SUGI ♂. 3. *Cryphia maritima* sp. n., ♂, holotype. 4. *Bryophila parva* sp. n. ♂, paratype. 5. *Bryophila albimixta* sp. n. ♂, holotype. 6. *Bryophila orthogramma* (BOURSIN) ♂.

Type-material. Holotype ♂. Yakushima Island—Onoaida, 9. viii. 1972 (T. WATANABE). Genitalia slide SS-2282. In coll. SUGI. Paratypes. Yakushima Island—Takaban-yama, 2 ♂, 14. viii. 1972; 1 ♀, 9. ix. 1972 (T. WATANABE). Onoaida, 1 ♂, 9. viii. 1972 (T. WATANABE). Aikodake, 1 ♀, 5. vii. 1972 (T. WATANABE). Nagata, 1 ♀, 5. viii. 1972 (T. WATANABE); 2 ♂ 1 ♀, 5–6. viii. 1972 (R. SATO *et al.*). Amami-Oshima Island—Mt. Yuwandake, 1 ♂, 15–17. viii. 1977 (A. SEINO). In coll. WATANABE & SUGI.

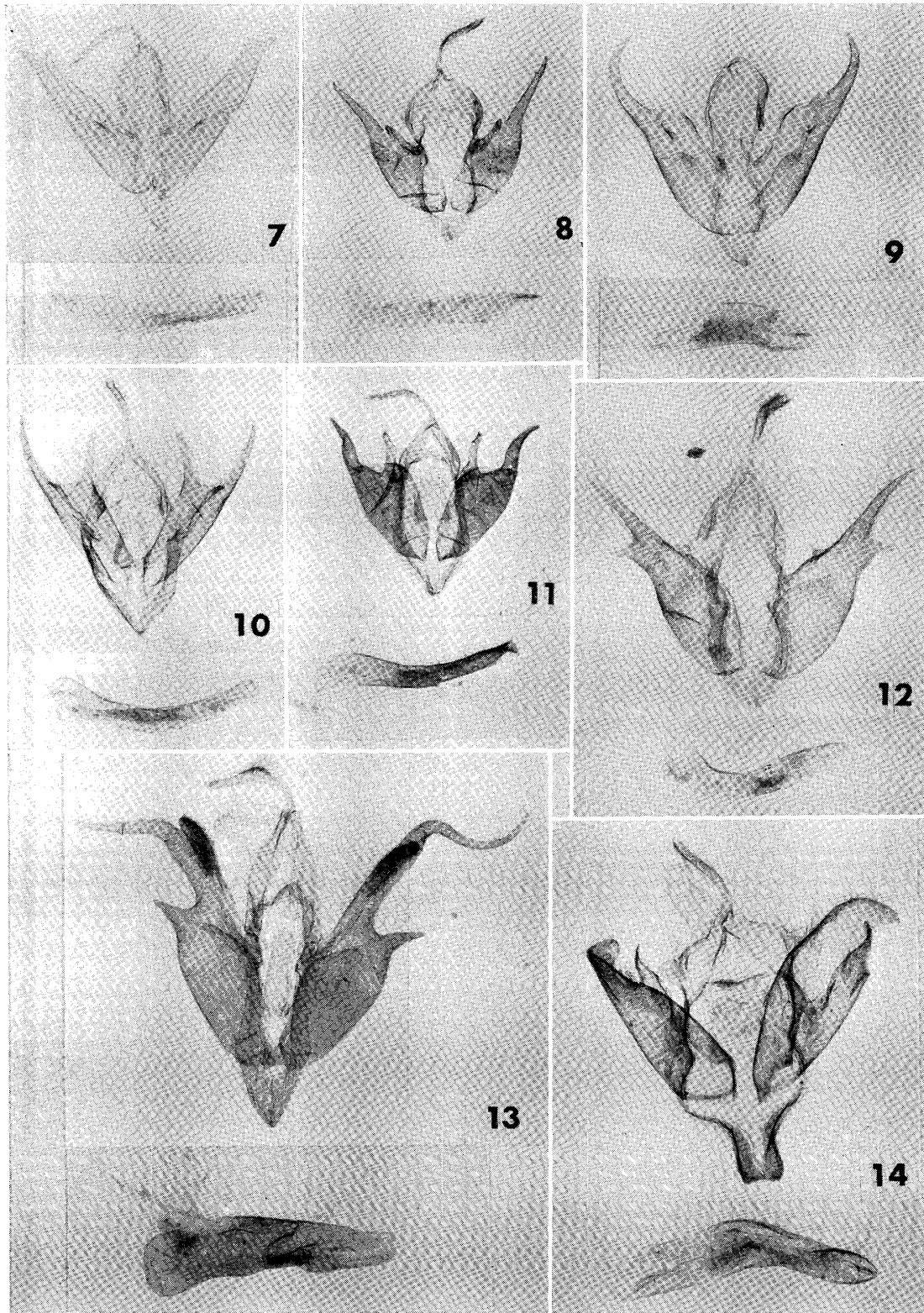
Other material. Kerama Islands—Geruma I., 1 ♂, 16. viii. 1977 (S. AZUMA). Genitalia slide SS-3081. In coll. SUGI.

Readily separable from *B. granitalis* by the smaller size, ashy grey tone of forewing, absence of black stria in submedian fold before termen, and lack of cornutus in the male genitalia.

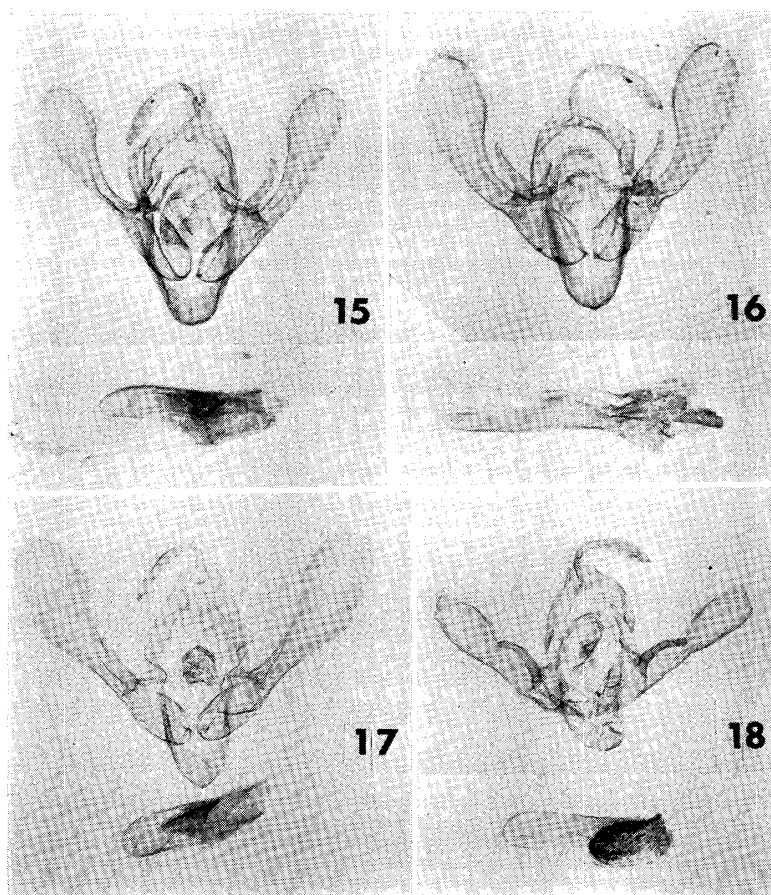
Distribution. Japan. At present not known from the mainland. Not uncommon in the islands of Yakushima and Amami-Oshima. One specimen collected in Kerama Islands, about 40 km west of Naha, Okinawa Island, belongs without doubt to this species, though excluded from the type-series as it is much smaller and somewhat dissimilar in wing pattern.

***Bryophila albimixta* sp. n.**
(Fig. 5)

Expanse 27 mm. Palpi dark grey brown, mixed with white. Head and thorax dark grey brown heavily mixed with white. Forewing dark grey brown, mixed with white from base to antemedian line, which is black, defined anteriorly by white; broad median band from costa to cell, defined posteriorly by reniform, and below submedian fold to hindmargin, edged above with pale brown; no black stria in submedian fold as in *granitalis*; orbicular round, pale with fuscous centre, reniform suffused with white, with fuscous lunule in it and defined by black annulus; postmedian line double as in *granitalis*, filled in with white; diffuse blackish points at costa before apex; subterminal space suffused with white, diffuse, blackish spots in it at cellules 6, 4 and 3, and before



Figs. 7-14. Male genitalia of *Cryphia*. 7. *C. bryophasma* BOURSIN. — 8. *C. obscura* (WARREN). — 9. *C. mediofusca* SUGI. — 10. *C. griseola* (NAGANO). — 11. *C. minutissima* (DRAUDT). — 12. *C. suzukiella* (MATSUMURA), lectotype. — 13. *C. maritima* sp. n., holotype. — 14. *C. sugitanii* BOURSIN.



Figs. 15-18. Male genitalia of *Bryophila*. 15. *B. granitalis* (BUTLER). — 16. *B. albimixta* sp. n., paratype. — 17. *B. orthogramma* (BOURSIN). — 18. *B. parva* sp. n., holotype.

tornus; a terminal series of black bars between veins; cilia dark blackish brown. Hindwing dark grey brown.

Male genitalia (Fig. 16). Nearly similar to those of *granitalis* (Fig. 15) in structures, but separable in the shape of cornutus, which is a small rod with blunt extremity clothed with minute setae.

Type-material. Holotype ♂. Chejudo (Quelpart) Island—Mt. Hanla, Kwan-eumusa, 600 m, 3. vii. 1968 (S. W. PAK). In coll. SUGI. Paratype. Chejudo Island—the type-locality, 4. viii. 1967 (S. W. PAK). Genitalia slide SS-1554. In coll. SUGI.

The present new species is a close ally to *B. granitalis* (BUTLER), but the strong white suffusion and lack of olivaceous or bluish grey tone readily serve to distinguish it from others.

Distribution. Korea; At present the type-series from Chejudo Island has been known to us.

***Bryophila orthogramma* (BOURSIN)**
(Fig. 6)

Cryphia orthogramma BOURSIN, 1954, *Z. wien. ent. Ges.*, **39**: 81, pl. 5: 10.

Male genitalia (Fig. 17). Valva a little more elongate than in *granitalis*, its ventral edge slightly swollen laterally. Aedeagus with a single cornutus, which is thorn-like, with broad basal cone and pointed extremity.

Specimens examined. Hokkaido—Shiretoko-misaki, 2 ♀, 15. viii. 1974 (K. JINBO & Y. YANAGIDA). Abashiri, 1 ♂, 4. viii. 1975 (R. SATO). In coll. SUGI and JINBO.

Distribution. Widely distributed in the Eurasian continent, westwards to Hungary, east through Siberia and Mongolia to Ussuri. In Japan, this species ranges to the limited area of northeast Hokkaido, where a few specimens has been collected.

Cryphia and *Bryophila* of temperate northeast Asia, except China¹⁾

The genera *Cryphia* and *Bryophila* are represented by the following species in the temperate northeast Asia, the Primorye region to Japan.

***Cryphia* HÜBNER, 1818**

bryophasma BOURSIN, 1951 Ussuri, Japan, China (Shansi).

obscura (WARREN, 1909) Japan.

mitsuhashi (MARUMO, 1917)

mediofusca SUGI, 1959 Japan.

griseola (NAGANO, 1918) Ussuri, Korea, Japan.

splendida (BANG-HAAS, 1927)

korealgae (BRYK, 1949)

minutissima (DRAUDT, 1950) Japan, China (Chekiang).

suzukiella (MATSUMURA, 1931) Japan.

maritima sp. n. Japan.

sugitanii BOURSIN, 1961 Ussuri, Japan.

***Bryophila* TREITSCHKE, 1825**

Bryoleuca HAMPSON, 1908

granitalis (BUTLER, 1881) Ussuri, Korea, Japan, China.

glaucula (STAUDINGER, 1892)

leprosa (WARREN, 1909)

albmixta sp. n. Korea (Chejudo I.).

parva sp. n. Japan (Yakushima I. to Amami-Oshima I.; Kerama Is.).

orthogramma (BOURSIN, 1954) Eurasia, east to Ussuri, Japan, China (Shantung).

Moths of *Cryphia* have the terminal segment of palpus as long as the second and the antennal ciliation in male much finer than in *Bryophila*. Wing pattern is more delicate, usually with tone of greenish or bluish colour. The genitalia are characteristic to species and readily used for identification. Basically valva has no inner armature and apical half of valva is actually composed of two parts, costal and ventral. *Bryophasma* (Fig. 7) appears exceptional and most primitive, in having moderate narrow valva with reduced sacculus, extremity of valva being minutely bilobate. In *obscura* (Fig. 8) and *mediofusca* (Fig. 3), closely related together, ventral process is fully de-

1) *Metachrostis assimilis* WARREN, 1909, referred by BOURSIN (1951) to *Euthales* HÜBNER (as a subgenus of *Cryphia*, s. l.) has been moved to *Stenoloba* STAUDINGER (cf. SUGI, 1970).

veloped but costal process degenerates into a small angulation (*obscura*) or an obscure swelling on costa (*mediofusca*). In *griseola* (Fig. 10) and *minutissima* (Fig. 11) sacculus proper is heavily bulged dorsad, bearing long process of nearly equal length to the costal one. The processes are widely separated at base in this couple of species, but a tendency to fusion of the processes at base is observed in *suzukiella* (Fig. 12), where the ventral process is shorter and similar to that in *maritima*. *Maritima* (Fig. 13) is peculiar in having most elongate costal process, slightly asymmetrical and bearing a digitate appendicular process on base of it. At the last most divergent example is the case of *sugitanii* (Fig. 14), in which the peniculus lobe is well developed, the saccus long and truncate at extremity, and valva is heavily bulged with deep emargination at apical end, which separates dorsal and ventral lobations. Aedeagus is simple in *Cryphia*, containing unarmed vesica.

Moths of *Bryophila* have the terminal segment of palpus much shorter and antennal ciliation in male is markedly longer than in *Cryphia*. Forewing is dark coloured in our species. The male genitalia are much uniform in structures throughout genus. Valva shows rounded apex with slight restriction nearly at middle, and sacculus is moderate, giving off digitate harpe of moderate length. Aedeagus is relatively short, usually containing a single cornutus, but in *parva* (Fig. 18) it is wanting. Shape of cornutus is more or less variable. In *orthogramma* (Fig. 17) it is a rose-thorn, while in *granitalis* (Fig. 15) short conical, and in *albimixta* (Fig. 16) a rod with blunt apex, very minutely toothed apically in both.

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References

- BOURSIN, Ch., 1941. Beiträge zur Kenntnis der "Agrotidae-Trifinae" XXIX. *Mitt. Münch. ent. Ges.*, **31**: 315–320, pl. 14.
 ——— 1951. Eine neue *Cryphia* Hb. (*Bryophila* auct.) aus Ost-Asien. *Z. wien. ent. Ges.*, **36**: 155–158, pl. 11.
 ——— 1954. Eine neue paläarktische (und europäische) *Cryphia* Hb. (*Bryophila*)-Art. *Z. wien. ent. Ges.*, **39**: 78–85, pls. 5–6.
 ——— 1961. Drei neue paläarktischen *Cryphia* Hb.-Arten. *Z. wien. ent. Ges.*, **46**: 139–144, pl. 10.
 ——— 1970. *Bryopsis* n. Subgen. für *Cryphia muralis* Forst (1771). *Z. wien. ent. Ges.*, **54**: 46.
 MATSUMURA, 1931. *6000 illustrated Insects of Japan-Empire*. Tokyo.
 SUGI, S., 1970. Notes on the genus *Stenoloba* Staudinger, with description of a new genus (Lepidoptera, Noctuidae, Cryphiinae). *Kontyû, Tokyo*, **38**: 130–135.

摘 要

いわゆるキノコヨトウの 3 新種を記載し、既知の 2 種を扱い、あわせて東北温帯アジアに分布するこの群 2 属 12 種の目録と全種の雄交尾器を図説した。1 種を除きすべて日本に分布する。

Cryphia suzukiella (MATSUMURA) スズキキノコヨトウ

模式産地は京都。ここに高知県四足峠および対馬香木山の 2 産地を追加する。

Cryphia maritima sp. n. ミナミキノコヨトウ (新称)

徳島県穴喰町水床、屋久島、奄美大島。

Bryophila parva sp. n. コイチモジキノコヨトウ (新称)

屋久島、奄美大島。ほかに琉球の慶良間諸島からも標本が得られている。

Bryophila albimixta sp. n.

済州島。

Bryophila orthogramma (BOURSIN) シレトコキノコヨトウ (新称)

北海道知床半島および網走市。